

**Chapter 173-173 WAC**  
**REQUIREMENTS FOR MEASURING AND**  
**REPORTING WATER USE**  
(Formerly chapter 508-64 WAC)

**Last Update: 12/21/01WAC**

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**WAC 173-173-010 What is the purpose of this rule? (1)**

This rule establishes standards of acceptability for measuring devices and methods, and requirements for recording and reporting water use data.

(2) All measuring devices or measuring methods required to be installed under this chapter must conform to requirements for measuring devices and methods described in this chapter, or other method(s) approved by the department.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-010, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-015 What are the goals of this rule? (1)** The department seeks to ensure the reliable, accurate measurement of state water that is diverted, withdrawn, stored and used so that sound decisions may be made in administering state water laws and regulations.

(2) The department has the following specific goals for the enforcement of water measurement and the reporting of measurement data:

(a) Determining whether water is available for

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appropriation;

- (b) Assessing and enforcing water rights compliance;
- (c) Understanding the hydrology of surface and ground waters;
- (d) Protecting instream resources;
- (e) Managing and planning the state's watersheds;
- (f) Informing water users about how much and when water is used.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-015, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-020 What is the authority for this rule?** (1) RCW 90.03.360 directs the department of ecology to require that diversions allowed by all new surface water permits be either metered or measured by other approved methods.

(2) RCW 90.03.360 also directs the department to require metering or measurement by other approved methods as a condition for all previously existing water rights or claims if:

(a) The diversion or withdrawal is from waters in which the salmonid stock status is depressed or critical, as determined by the Washington department of fish and wildlife; or

(b) The flow rate of the surface water diversion exceeds one cubic foot per second.

(3) RCW 90.44.050, 90.44.250 and 90.44.450 give the department authority to require that ground water withdrawals are measured, and to require that information about the amount of water being withdrawn be reported to the department.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-020, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-040 To whom does this rule apply?** The requirements of this chapter apply to the owner or owners of any source water diversion or source withdrawal and to the department.

(1) Any owner or owners of any surface water diversion are required by state law (RCW 90.03.360) to measure and regulate their water use.

(2) The department must enforce the requirement to measure water use for the following types of water use:

(a) All new surface water permits;

(b) New and existing surface water rights where the

diversion of any volume of water is from waters containing depressed or critical salmonid stock;

(c) New and existing ground water rights where the department concludes that the withdrawal of any volume of water may affect surface waters containing depressed or critical salmonid stock;

(d) Existing surface water rights where the diversion volume exceeds one cubic foot per second.

(3) This chapter only applies to source diversions and withdrawals and is not intended to apply to customers of a municipality or public water supply system or members of an irrigation district or similar secondary users.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-040, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-045 Definitions.** (1) "Approved measuring device" means an instrument or facility constructed and operated in conformance with the requirements of this chapter and that measures the volume or flow rate of water which is diverted, withdrawn, stored, or used.

(2) "Approved measuring method" means a procedure approved by the department, which, when used with an approved measuring device (if applicable), will allow for an accurate computation of flow rate.

(3) "Control" means a feature that determines the stage-discharge relation. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

(4) "Cfs" means cubic feet per second.

(5) "Controlling work" means a device or structure used for diverting, withdrawing, pumping, impounding, storing, measuring, piping, conserving, conveying, confining or using water.

(6) "Department" means the department of ecology.

(7) "Diversion" means to divert water from one course to another. Diversion, when used without qualification, includes the diversion of surface water and the withdrawal of ground water.

(8) "Flow rate" means the volume of water that passes through a specific cross section of a pipe or open channel in a specified period of time.

(9) "Gpm" means gallons per minute.

(10) "Open channel flow" means water moving through a canal, flume, ditch, or other unenclosed conduit, and may include flow in a pipe if the pipe is not full and is not under pressure.

(11) "Pipeflow" means water moving through a closed conduit under pressure.

(12) "Rated section" means a cross-section of a stream, river or ditch where a unique relationship between the stage and flow rate has been determined.

(13) "Rating curve" means the relationship between stage and flow rate in a rated stream section.

(14) "Responsible party" means an owner, owners, manager, or appropriator required by RCW 90.03.360, 90.44.050, 90.44.250 and 90.44.450, or by a permit, rule, or order issued pursuant to these laws, to use a measuring device or method approved by the department.

(15) "Stage" means the elevation of a water surface in relation to a datum or reference point.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-045, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-050 What water use information may the department require regarding my water use?** (1) The department may require any responsible party to report data describing the volume of water diverted, withdrawn, used or stored, and other related information.

(2) If a responsible party is required to report information regarding water use, the report must be submitted on a form or in a format prescribed by the department and must include such information as requested by the department. The department may require that the information be submitted in writing or electronically. This information may include, but is not limited to, the following:

(a) The name, address and telephone number of the responsible party;

(b) The location of the point(s) of diversion or withdrawal, the place(s) of use and metering site(s);

(c) The county parcel identification number for the point(s) of diversion or withdrawal, and place(s) of use or area served by the diversion or withdrawal, except that municipalities, public water supply systems and irrigation districts shall not be required to provide parcel identification numbers for their customers, members and secondary users.

(d) The water right number(s) or claim number(s) or other information that indicates the legal basis for the diversion or withdrawal;

(e) The volume and/or flow rate of water diverted or withdrawn;

- (f) The make, model and serial number of the measuring device(s) and any separable counting units;
- (g) The date the device was last calibrated;
- (h) Any date(s) during which the meter or measuring device was not functioning properly;
- (i) For flow rate data based upon power consumption, electrical records, pump test data, or other data necessary to verify flow rate estimates;
- (j) Whether the intake structure for the diversion has a screen or screens installed to prevent the entry of fish into the diversion works or pump facilities;
- (k) The water source name;
- (l) For public water systems, the public water system identification number and source number assigned by the department of health.
- (3) All responsible parties must attest that the information provided is true and correct to the best of their knowledge.
- (4) The department may accept water use information from a stream patrolman on behalf of a responsible party.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-050, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-060 If I must report data regarding my water use, how shall I report it?** (1) The following requirements to measure and report water use, when the department so requires, shall apply to responsible parties who divert or withdraw water.

Recording and Reporting Requirements			
Average diversion rate in gallons per minute	<10 gpm	10-49 gpm	>50 gpm
Recording frequency	Monthly	Biweekly	Weekly
Volume or rate to report	Maximum rate of diversion	Maximum rate of diversion	Maximum rate of diversion
	Annual total volume	Annual total volume	Annual total volume
Date data must be reported to department	By Jan. 31 of the following calendar year	By Jan. 31 of the following calendar year	By Jan. 31 of the following calendar year
Monthly means calendar month			
Weekly means Monday 12:01 a.m. to Sunday 12:00 p.m.			
Biweekly means once every two weeks			
Daily means 12:01 a.m. to 12:00 p.m.			
1 gallon per minute is equivalent to .002 cubic feet per second			

(2) Where a device capable of indicating flow rate is not installed, a responsible party may determine the maximum flow rate by measuring the volume of water that is diverted over a brief time period when the system is operating under maximum demand.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-060, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-080 Can the department modify the reporting requirements on a case-by-case basis?** (1) Yes. The department may modify the reporting requirements in WAC 173-173-060 of this chapter if it concludes that different reporting requirements are necessary to meet the water measurement and reporting goals described in WAC 173-173-015.

(2) The department will provide a written justification and notification to the responsible party.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-080, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-090 What are the general requirements for measuring devices?** (1) No withdrawal or diversion of water shall be made unless the measuring devices and facilities are in proper operating condition, except when:

(a) A measuring device or facility is being repaired according to the requirements of subsection (2) or (3) of this section; and

(b) The responsible party uses a substitute measuring device or other method to measure the diversion or withdrawal or to provide a reasonable estimate thereof.

(2) Upon discovery of a malfunctioning measuring device or facility, the responsible party shall repair the device or facility and make them operable as soon as possible.

(3) If a responsible party does not comply with WAC 173-173-090(2), the department may order that a measuring device or facility be repaired or replaced within a specified time period.

(4) Measuring devices and facilities must register and be calibrated for the full range of discharge from the diversion or withdrawal for which they are to be used.

(5) On an open channel diversion, all flow diverted shall be measured as close to the point of diversion as possible.

(6) There shall be no turnouts or diversions between the source of water and the measuring devices and facilities, except for faucets or other small outlets that have a *de minimis* effect on the diversion or withdrawal.

(7) In those cases where wells are authorized for the purpose of supplementing surface waters with water from combined sources, both sources of water shall be metered.

(8) In the case of intermittent artesian wells, the meter shall be installed in a manner that will measure both pumped and flowing discharge.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-090, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-100 What are the specific requirements for meters for pressure systems?** (1) At any flow rate measured by the meter, the meter itself shall be rated by the manufacturer to register not less than ninety-five percent, nor more than one hundred five percent, of the water actually passing through the meter.

(2) At any flow rate measured by the measuring system; i.e., meter plus any secondary equipment such as data recorders; the system shall register not less than ninety percent, nor more than one hundred ten percent, of the water actually passing through the system.

(3) The meter shall have a visual totalizer or the facility shall be capable of totalizing the flow. The totalizer shall contain sufficient recording digits to ensure that "roll over" to zero does not occur before the next recording period.

(4) The department may require that the measuring device be capable of indicating flow rate as well as totalized flow.

(5) For other conditions necessary to ensure accurate and precise measurement data, the selection, installation and maintenance of measuring devices by water users shall be guided by generally accepted industry standards, such as the American Water Works Association standards and information from the manufacturer. These standards also shall be used by the department in making decisions as to the appropriate selection, installation, operation and maintenance of measuring devices acceptable under this rule.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-100, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-110 What are the installation requirements for meters on pressure systems?** Meters required under this rule shall meet the following installation requirements:

(1) The meter shall be installed in accordance with manufacturer specifications.

(2) There shall be a full pipe of water at all times when water is being withdrawn.

(3) The meter shall not be installed in a manner that creates an uneven velocity profile. Straight sections of pipe before and after the meter, straightening vanes or other flow conditioning devices shall be used to provide even flow through the meter as necessary.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-110, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-120 What are the operation and maintenance requirements for meters on pressure systems?** (1) Meters shall be inspected and maintained as specified by the manufacturer.

(2) Meters shall be field or shop calibrated, as specified by the manufacturer. Meters also shall be field or shop calibrated and/or repaired if they are over or under registering. System diagnostics may substitute for physical calibration of nonmechanical meters.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-120, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-130 What are the specific requirements for measuring systems on open channels?** The following requirements apply to weirs, flumes, ramps and orifices. For other devices, the department will determine specific requirements on a case-by-case basis.

(1) At any flow rate measured by the measuring system, i.e., the measuring device plus any secondary equipment such as data recorders, the system shall register not less than ninety percent, nor more than one hundred ten percent, of the water actually passing through the system.

(2) In determining a stage-discharge relation for these devices, the distribution of open channel flow measurements shall be sufficient to establish a full range of values for the entire stage-discharge relation.



(3) For other conditions necessary to ensure accurate and precise data, generally accepted industry standards, such as those in the U.S. Bureau of Reclamation *"Water Measurement Manual, Third Edition"* and information from the manufacturer or designer, shall guide the selection, installation, and maintenance of measuring devices and facilities by water users. The department also shall use these standards in evaluating the selection, installation, operation and maintenance of the measuring system.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-130, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-140 What are the installation requirements for open channel measuring systems?** The measuring facility shall be installed or constructed in accordance with the manufacturer's and/or designer's specifications.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-140, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-150 What are the operation and maintenance requirements for open channel measuring facilities?** (1) Rating curves shall be recalculated when there is a change in channel conditions that significantly alters flow across the control or once a year, whichever is more frequent.

(2) If the measuring system has no continuous stage recorder, an observer shall read the staff gage and record the reading as close in time as is practical before and after changes in regulation of flow occur.

(3) Measuring facilities shall be operated and maintained to ensure that discharge can be measured accurately.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-150, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-160 Under what conditions is the use of power consumption data acceptable to the department?** (1) Use of power consumption data may be substituted for more direct flow measurement methods, provided:

(a) Use of the method is approved in writing by the

department;

(b) Installation of a water meter would be unduly burdensome to the water user;

(c) The water system maintains a constant or near constant pumping or diversion rate;

(d) The power meter is dedicated to one diversion or withdrawal;

(e) A pump test is conducted for a minimum duration of two hours and is conducted under normal operating conditions;

(f) The diversion or withdrawal is not a flowing artesian well.

(2) The equation below shall be used when relying upon electrical power consumption to estimate volume or flow rate. This equation also may be used to estimate flow during short periods of meter repair or maintenance if the department finds that reasonable estimates of pump and motor efficiency are available:

$$V = \frac{318,600 (kWh) (P_{eff}) (M_{eff})}{TDH}$$

Where: V = volume of water pumped in gallons;

318,600 = conversion factor;

kWh = number of kilowatt-hours for the time period in question; e.g., irrigation season, year or minutes;

P<sub>eff</sub> = pump efficiency as a decimal;

M<sub>eff</sub> = motor efficiency as a decimal; and

TDH = total dynamic head of the system in feet.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-160, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-170 What alternative water measuring devices and methods can I use?** Any responsible party may use an alternative water measuring device or method that differs from those described in this chapter, if:

(1) The method is approved in writing in advance by the department; and

(2) The device(s) and installation are certified by a registered professional engineer or other qualified person acceptable to the department to:

(a) Measure all flow diverted or withdrawn in accordance with the pipeflow or open channel accuracy requirements in WAC 173-173-100(2) and 173-173-130(1);

(b) Measure the appropriate volumes and flow rates in WAC (1/25/02 10:01 AM) [ 10 ]

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(c) Be installed and operated according to the manufacturer's and/or designer's instructions, and other such conditions as the department may find necessary.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-170, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-175 May I request a variance from the technical and reporting requirements contained in this chapter?**

(1) Yes. Any responsible party may request in writing to the department a variance from the requirements of this chapter pertaining to the:

- (a) Acceptable accuracies of measuring devices and methods;
- (b) Reporting of water use data;
- (c) Calculation of rating curves;
- (d) Other provisions as the department may find acceptable.

(2) Provided, the department may not grant a variance from the requirements of WAC 173-173-040 or exempt a responsible party of its obligation to comply with RCW 90.03.360.

(3) No variance request shall be considered granted until the department has approved it in writing.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-175, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-180 What recordkeeping responsibilities do I have?** All measurement notes, rating curves, calculations, and data logs should be retained as long as practicable, and copies made available to the department when requested.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-180, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-190 Will the department notify the Washington department of fish and wildlife about the status of my fish screens?** Yes. The department will notify the department of fish and wildlife regarding the status of fish screens associated with diversions and withdrawal facilities subject to this rule.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-190, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-200 Does the department have authority to enforce this rule?** Yes. In enforcing this chapter the department can impose such sanctions as are appropriate under the authorities vested in it, including, but not limited to, issuing regulatory orders under RCW 43.27A.190 and civil penalties under RCW 90.03.600.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-200, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-210 Can I appeal the department's order to measure my water use?** Yes. Appeals may be filed with the pollution control hearings board in accordance with RCW 43.21B.230, except that appeals of orders to measure water use issued by a court conducting a general adjudication of water rights pursuant to RCW 90.03.110 through 90.03.245 shall be filed in accordance with the applicable Washington court rules.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-210, filed 12/21/01, effective 1/21/02.]

**WAC 173-173-220 Will the department review this rule in the future to determine if changes are necessary?** Yes. The department will initiate a review of the rules established in this chapter if new information, changing conditions, or statutory modifications make it prudent or necessary to consider revisions to the chapter.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-220, filed 12/21/01, effective 1/21/02.]